AMENDMENTS TO THE DRAWINGS

The attached drawing sheet includes changes to Fig. 5, and replaces the original sheet. In Fig. 5, previously omitted elements labeled "Interleaver" and "Deinterleaver" have been added.

The attached 1 drawing sheet for Figure 5 is a direct Replacement Drawing and no new matter is added

REMARKS

In this non-final action the Office has rejected claims 1-5, 8, 9, 12, 13, and 15-20. The Office has objected to claims 6, 7, 10, 11, 14, and 18.

Information Disclosure Statement

Applicant notes the Office Action Summary acknowledged the Examiner's review of the Information Disclosure Statement submitted on 1/2/2004.

Improper Drawing Requirement

The Office has objected to the drawings under 37 CFR 1.83(a) alleging that they fail to show every feature of the invention as specified in the claims. In more particular detail, the Office states that interleave/deinterleaver of claim 7 does not appear in the figures.

The CAFC in *Cordis Corp. v. Medtronic AVE, Inc.*, 67 USPQ2d 1876 (Cir. Fed. 2003), notes that "drawings in the patent are merely a 'practical example' of the invention." 67 USPQ2d at 1886, citing Lampi Corp. v American Power Products, 228 F.3d 1365, 1378, 56 USPQ2d 1445 (Fed. Cir. 2000).

As shown in Prior Art Figure 1, the deinterleaver and interleaver are shown and the deinterleaver (60) is shown coupled between the MUD (50) and decoders (65) on one end and the interleavers (75) are coupled between the decoders (65) and MUD (50) on the other end. The details of embodiments of the invention in Figure 4 and 5 depict the pipelined processing features and the deinterleavers and interleavers. It is noted in Par [0058] that "[d]einterleavers and interleavers (not shown) are optional elements that are used if the transmitted signals are interleaved, such as the CDMA format and are known in the art." Similarly in Par [0086] "[i]f the signals were transmitted with interleaving, the reliability measures from the MUD are first passed through a deinterleaver (not shown) and passed on in shuffled form to the decoder."

Referring to Figure 5, one skilled in the art can readily appreciate using Figure 1 as a reference, the first deinterleavers are coupled between the MUD_0 (410) and the Decoder (430) and the first interleavers are coupled between the Decoder (430) and the MUD_1. There are additional deinterleavers and interleavers similarly situated for each processing loop. The implementation of the interleavers and deinterleavers in conjunction with the other features provides for unique structure and processing which is explained in the specification.

As this is clearly described in the present application, the features of the various embodiments of the invention are not lacking. In fact, the Office has requested these elements to be added between the multiuser detector and the decoders. Thus, a replacement sheet showing the deinterleavers and interleavers is not new matter. Figure 5 has been amended to show the placement of the deinterleavers and interleavers and acceptance is respectfully requested.

Claims Rejections - 35 USC §102(b)

The Office rejected claims 1-5, 8, 9, 12, 13, 15-17 and 20 under 35 U.S.C. 102(e) as being anticipated by Mills (U.S. Pat. No. 6,999,498). A rejection based on anticipation requires that a single reference teach every element of the claim (MPEP § 2131). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Or stated in another way, a "claim is anticipated only if each and every element as set forth in the claim is found, . . . described in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Applicant notes that the '498 reference entitled "Multiuser detection aided multiple access differential frequency-hopped spread spectrum" is commonly assigned and that there is some common inventorship (Dianne E. Egnor). The '498 was filed August 7, 2003 and has a 371(c) date of April 22, 2005 and a PCT Pub Date of Nov. 11, 2004. The '498 also claims the benefit of U.S. Provisional application No. 60/465,026, filed Apr. 24, 2003, is a continuation-in-

part of U.S. application Ser. No. 10/422,340, filed Apr. 24, 2003 now U.S. Pat. No. 6,954,482, is a National Stage of International Application No. PCT/US03/24920, filed Aug. 7, 2003.

The present application is related to PCT Patent Application No. PCT/US03/20098, entitled "Windowed Multiuser Detector", filed June 25, 2003. The "Windowed Multiuser Detector" application is related to U.S. application Ser. No. 10/105,918, filed Mar. 25, 2002, and is related to U.S. application Ser. No. 10/228,787 filed Aug. 26, 2002, and also to U.S. application Ser. No. 10/423,740, filed Apr. 25, 2003.

Thus, the Applicant does not concede that the '498 reference is prior art for the inventive subject matter claimed herein. However, since the rejections and objections are traversed on the merits, further consideration of this point is presently moot.

The Office alleges that Mills discloses the claimed elements of Claims 1 and 8 and thereby anticipates these claims. The Applicant disagrees with these allegations but has incorporated noted allowable elements thereby traversing the rejections. In more particular detail, the features of claim 6 having the parameter estimator establishing the size of the processing window have been incorporated into Claim 1. The elements of claim 14 regarding synchronization to determine which of the processed blocks of data to decode has been incorporated into Claim 10. Referring to Claim 15, the interleaver and deinterleaver of Claim 18 has been added into Claim 15, wherein the Office objected to this claim but deemed it otherwise allowable.

Applicant believes that these amendments traverse the rejections and that an allowance should be forthcoming. However, if the Office has any questions or further concerns, the Applicant respectfully requests that they contact their attorneys.

Claim Objection

Per claim 5, the Office has objected to "FANO" as being an acronym requireing a definiiton. The Fano algoritm is named after Robert Mario Fano, an early pioneer in the field of

information theory. The algorithm bearing his name is not an abbreviation and the Applicant has amended the claim to place the algorithm in proper name format.

Claims Rejections - 35 USC §112 Second Paragraph

The Office rejected Claims 15 - 20 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. A §112 second paragraph rejection has two separate requirements, indefiniteness and failing to claim what applicant regards as the invention. With respect to indefiniteness, the "essential inquiry pertaining to this requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of (1) the content of the particular disclosure, (2) the teachings of the prior art, and (3) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made." (MPEP §2173.02).

A rejection stating that the claims fail to set forth the subject matter that the applicant regards as the invention is only appropriate where the applicant has stated that the invention is something different from what is defined by the claims (MPEP §2172(a)). There is a presumption that the claims describe the applicant's invention, absent evidence to the contrary.

In more particular detail, the Office alleges that the recitation in claim 15 "refreshing said one of said blocks of data" is unclear and unknown in the context. However, as described in the specification with Respect to Figure 4:

> [0072] At some point in time, as soon as an entire block of data **310** has been processed through the MUD processor **305**, the data must be decoded for that User. **The data is 'replaced' or refreshed so that that next MUD processor sees a different set of data**. (emphasis added)

> [0073] More specifically, referring again to **Figure 4**, which graphically illustrates a snapshot in time for a plurality of MUD processors **305** processing partial blocks of data **310** within the processing window **300**. The MUDs **305**

process the block data **310** within the processing window **300**, including the data from multiple Users, herein shown as User 1, User 2 and User k. The size of the processing window **300** is determined by the frame boundaries as established by the parameter estimator (not shown), wherein the processing window **300** commences at the beginning of the frame of data from User 1 up until the beginning of the frame of data of User 2, and so on. Thus, the MUD_0 processes the end of the frame from User 2 as well as the beginning portion of the frame of User 1.

[0074] As soon as MUD_0 has processes the last bit from User 2 block i, MUD_0 must now pass on the data for decoding all the blocks for User 2 **and replace the data before processing the data within those frames in the next MUD iteration**. Therefore, once the MUD's **305** are finished processing User 2 frame, in the next instant, all User 2 frames are decoded **315**. The processing can be done sequentially or in parallel employing the processing scheme of the present invention. (emphasis added)

[0075] The lower portion of **Figure 4** illustrates a subsequent processing, wherein the MUD processors **320** are processing the blocks of data **310**, including the refreshed data for the blocks of User 2. The processing window **325** in this instant begins at the beginning of the block from User 2 and extends to the beginning of the block of the next User who will have a block completed by this frame, in this case it happens to be user 1. As shown, MUD_0 is processing the last portion of block i+1 for User 1, MUD_1 is processing the last portion of block i for User 1, and MUD_2 is processing the last bit of block i-1 for User 1. **At the next instant in time after the last portion of the blocks i-1, i, and i+1 of User 1 has been processed, the data from User 1 is decoded 330 and the data for User 1 is refreshed or replaced**. (emphasis added)

[0076] It should be appreciated at this point, that as time marches on, block i+1 will be processed in turn by MUDs 1, 2 and so on. Prior to reaching each of these MUD processors **320**, the block i+1 data will have passed through several MUDs and decodings, **each time being replaced with the newly computed values**. In this fashion the iterative or turbo MUD processing is accomplished. The processing continues as noted herein, and the decoding process is further illustrated in **Figure 5**. (emphasis added)

As noted in this description of Figure 4, the 'refreshing' is also referred to as 'replacing', and refers to the processing once the entire block of data is completed by the turbo MUD so that that next MUD processor sees newly computed values. This is also illustrated in Figure 5.

Telephone Interview

Present Office policy places great emphasis on telephone interviews initiated by the examiner. For this reason, it is not necessary for an attorney to request a telephone interview. Examiners are not required to note or acknowledge requests for telephone calls or state reasons why such proposed telephone interviews would not be considered effective to advance prosecution. However, it is desirable for an attorney to call the examiner if the attorney feels the call will be beneficial to advance prosecution of the application. MPEP§408

Applicant believes the above amendments and remarks to be fully responsive to the Office Action, thereby placing this application in condition for allowance. No new matter is added. Applicant requests speedy reconsideration, and further requests that Examiner contact its attorney by telephone, facsimile, or email for quickest resolution, if there are any remaining issues.

Respectfully submitted,

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